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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/591,418	07/10/2007	Roderick Scott	68449.000002	1757
21967 7590 11/24/2010 HUNTON & WILLIAMS LLP INTELLECTUAL PROPERTY DEPARTMENT 1900 K STREET, N.W. SUITE 1200 WASHINGTON, DC 20006-1109			EXAMINER COLLINS, CYNTHIA E	
			ART UNIT 1638	PAPER NUMBER
			MAIL DATE 11/24/2010	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/591,418

Applicant(s)

SCOTT, RODERICK

Examiner

Cynthia Collins

Art Unit

1638

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 September 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) See Continuation Sheet is/are pending in the application.
- 4a) Of the above claim(s) See Continuation Sheet is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2,77 and 166-174 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Continuation of Disposition of Claims: Claims pending in the application are 1-5,10,20,22,25,26,28-31,34-44,47-70,72,74-80,85,95,97,98,100,103-105,109,113-125,128-151,153 and 155-174.

Continuation of Disposition of Claims: Claims **withdrawn** from consideration are 1,3-5,10,20,22,25,26,28-31,34-44,47-70,72,74-76,78-80,85,95,97,98,100,103-105,109,113-125,128-151,153 and 155-165.

DETAILED ACTION

The Amendment filed September 16, 2010 has been entered.

Claims 6-9, 11-19, 21, 23-24, 27, 32-33, 45-46, 71, 73, 81-84, 86-94, 96, 99, 101-102, 106-108, 110-112, 126-127, 152 and 154 are cancelled.

Claim 2 is currently amended.

Claims 1, 3-5, 10, 20, 22, 25-26, 28-31, 34-44, 47-70, 72, 74-76, 78-80, 85, 95, 97-98, 100, 103-105, 109, 113-125, 128-151, 153 and 155-165 are withdrawn.

Claims 166-174 are new.

Claims 1-5, 10, 20, 22, 25-26, 28-31, 34-44, 47-70, 72, 74-80, 85, 95, 97-98, 100, 103-105, 109, 113-125, 128-151, 153 and 155-174 are pending.

Claims 2, 77 and 166-174 are examined.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

All previous objections and rejections not set forth below have been withdrawn.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 166, and claims 167-174 dependent thereon, are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably

convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 166 is drawn to a method according to claim 2, in which the expression of the mnt gene is increased or decreased by transforming the plant or plant propagating material with a nucleic acid molecule comprising a regulatory sequence. A method in which the expression of the mnt gene is increased or decreased by transforming the plant or plant propagating material with a nucleic acid molecule comprising only a regulatory sequence does not find support in the specification as filed, and thus constitutes new matter.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention

Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 2 is indefinite in the recitation of “the mnt gene or orthologue therein”, as there is insufficient antecedent basis for this limitation in the claim.

Claim 2, and claims 167-174 dependent thereon, are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are those that would result in increasing or decreasing the expression of the mnt gene or orthologue therein as required by the claimed method, as the claim recites no positive method steps that would cause this to happen.

Claim 2, and claims 167-174 dependent thereon, are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: that would be used to cause increased or decreased the expression of the *mnt* gene or orthologue therein as required by the claimed method, as the claim recites none of the elements that are disclosed as being essential to this process.

Claim 166, and claims 167-174 dependent thereon, are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: those that would be used to cause increased or decreased the expression of the *mnt* gene or orthologue therein as required by the claimed method, as the specification does not disclose any method in which a regulatory sequence alone is an element essential to this process.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 77 remains rejected under 35 U.S.C. 102(e) as being anticipated by Harada et al. (U.S. Patent No. 7,612,253, issued November 3, 2009 and filed as a continuation of US 10/177,029 filed June 21, 2002), for the reasons of record set forth in the office action mailed March 16, 2010.

Claim 77 is drawn to a plant which includes a nucleic acid molecule comprising at least one regulatory sequence capable of directing expression within the integuments and/or seed coat of at least one nucleic acid sequence whose expression or transcription product is capable of directly or indirectly modulating cell proliferation.

Harada et al. teach a method which comprises the step of transforming a plant, or plant propagating material, with a nucleic acid molecule comprising at least one 35S promoter regulatory sequence capable of directing expression of at least one nucleic acid sequence encoding a FUS3 protein (column 23-24; column 67 claim 6). The expression or transcription product of the nucleic acid sequence encoding a FUS3 protein is capable of directly or indirectly modulating cell proliferation because ovules of plants transgenic for FUS3 increased in size indicating the induction of ovule growth and proliferation (column 24). The nucleic acid sequence encoding a FUS3 protein includes or is derived from a gene involved in hormone response, biosynthesis, translocation, or other aspects of hormone action because seedlings transgenic for FUS3 can be obtained on hormone-free medium, and because FUS3 is disclosed as altering cytokinin related processes (column 2; column 8; column 23). Harada et al. also teach a transgenic plant produced by said method (columns 23-24). The 35S promoter used to express FUS3 in the transgenic plants is capable of directing expression within the integuments and/or seed coat because the 35S promoter is a constitutive promoter and is thus capable of expression

in all types of plant tissues. See, e.g., McBride et al. , U.S. Patent No. 6,222,097 issued April 24, 2001, who teach 35S promoter expression in integuments at column 17 lines 5-14.

Applicant's arguments filed September 16, 2010 have been fully considered but they are not persuasive.

Applicants maintain that Harada does not anticipate the claimed invention because claim 2, and the claims depending therefrom, are amended herein to recite in pertinent part, expression of the mnt gene or an orthologue thereof in the integuments and/or seed coat of a plant or plant propagating material, as part of a method of controlling cell proliferation which Applicants submit that Harada does not teach (reply pages 22-24).

Applicant's arguments are not persuasive with respect to claim 77, because claim 77 does not depend from claim 2, and because claim 77 does not require expression of the mnt gene or an orthologue thereof in the integuments and/or seed coat of a plant or plant propagating material, as part of a method of controlling cell proliferation.

Claims 2 and 77 remain rejected, and claims 166-174 are rejected, under 35 U.S.C. 102(b) as being anticipated by Tiwari et al. (The roles of auxin response factor domains in auxin-responsive transcription. The Plant Cell, Vol. 15, 533-543, February 2003), for the reasons of record set forth in the office action mailed March 16, 2010, and for the additional reasons set forth below.

Claim 2 is drawn to a method of controlling cell proliferation in the integuments and/or seed coats of a plant, comprising increasing or decreasing the expression of the mnt gene or an orthologue thereof in the integuments and/or seed coat of a plant or plant propagating material.

Claim 77 is drawn to a plant which includes a nucleic acid molecule comprising at least one regulatory sequence capable of directing expression within the integuments and/or seed coat of at least one nucleic acid sequence whose expression or transcription product is capable of directly or indirectly modulating cell proliferation.

Claim 166 is drawn to the method according to claim 2, in which the expression of the *mnt* gene is increased or decreased by transforming the plant or plant propagating material with a nucleic acid molecule comprising a regulatory sequence.

Claims 167-174 are drawn to the method according to claim 2 or 166, in which the overall size of the integuments and/or seed coat in the plant is modified, in which the expression of *mnt* is inhibited, in which cell division in the integuments and/or seed coat is increased, resulting in a larger seed compared to wild type, in which the seed is at least 5% heavier than wild type, in which the diameter of the stem of the transformed plant is at least 10% greater than wild type, in which the sepal length of the plant is sufficiently greater than wild type to inhibit flower opening, in which the number of cells in the integuments and/or seed coat of the plant is increased compared to wild type, and in which the expression of *mnt* is enhanced.

Tiwari et al. teach a method comprising the step of transforming carrot cells with a nucleic acid molecule comprising at least one 35S promoter regulatory sequence capable of directing expression of at least one nucleic acid sequence that includes or is derived from the auxin response factor 2 (ARF2) gene (page 534 Figure 1; page 542 column 1). The auxin response factor 2 (ARF2) gene is the same as the *MNT* gene, as set forth at page 33 of the specification. Tiwari et al. also teach a transgenic carrot cells produced by said method (page 534 Figure 1; page 542 column 1). The carrot cells are a plant within the meaning set forth in the

specification at page 9. The 35S promoter used to express ARF2 in the carrot cells is capable of increasing expression in integuments and/or seed coat of a plant or plant propagating material because the 35S promoter is a constitutive promoter and is thus capable of expression in all types of plant tissues. See, e.g., McBride et al. , U.S. Patent No. 6,222,097 issued April 24, 2001, who teach 35S promoter expression in integuments at column 17 lines 5-14. The phenotypic effects recited in the rejected claims (i.e. control of cell proliferation, modification of overall size of the integuments and/or seed coat in the plant, inhibition of the expression of mnt, increased cell division in the integuments and/or seed coat, increased seed weight, increased stem diameter, increased sepal length, increased cell number in the integuments and/or seed coat of the plant, enhanced expression of mnt) are inherent to the method of Tiwari, because the phenotypic effects occur as a consequence of mnt gene expression, i.e. they are end results of practicing the claimed method.

Applicant's arguments filed September 16, 2010 have been fully considered but they are not persuasive.

Applicants maintain that Tiwari does not anticipate the claimed invention because Tiwari does not teach increasing or decreasing expression of the mnt gene or an orthologue thereof in the integuments and/or seed coat of a plant or plant propagating material, or increasing or decreasing the expression of the mnt gene or an orthologue thereof in the integuments and/or seed coat of a plant or plant propagating material as part of a method of controlling cell proliferation (reply pages 22-24).

Applicant's arguments are not persuasive with respect to claim 77, because claim 77 does not require expression of the *mnt* gene or an orthologue thereof in the integuments and/or seed coat of a plant or plant propagating material, as part of a method of controlling cell proliferation.

Applicant's arguments are also not persuasive because the method of Tiwari inherently results in increased expression of the *mnt* gene or an orthologue thereof in the integuments and/or seed coat of a plant or plant propagating material, because the 35S promoter used in the method of Tiwari is a constitutive promoter and is thus capable of expression in all types of plant tissues, as set forth previously.

Applicant's arguments are additionally not persuasive because control of cell proliferation is inherent to the method of Tiwari, because control of cell proliferation is a consequence of *mnt* gene expression.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Remarks

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia Collins whose telephone number is (571) 272-0794. The examiner can normally be reached on Monday-Friday 8:45 AM -5:15 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anne Marie Grunberg can be reached on (571) 272-0975. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Cynthia Collins/
Primary Examiner, Art Unit 1638

CC